INSTRUCTION MANUAL

VCR 4045

Color Audio/Video Processor

Remarks-Very important-please observe!

The processor permits video and audio processing that can be observed on a connected monitor (TV set). However, the observed adjustments cannot coincide with the result of the transferred video recording. This is because the characteristics of the recording deck-the master video recorder-(automatic level control, wow and flutter) are not taken into account. It is therefore advisable to conduct a number of test runs to establish the optimum control ranges.

PLEASE SWITCH OFF THE MACHINE BEFORE INSERTING OR REMOVING PLUGS!

Incorrect operation can damage the processor.

SPECIAL EFFECTS / COLOR AREAS / TITLES

Equipment like the VCR 4045 which mixes video signals requires good original recordings for processing. Fluctuations in the even running of the tape and/or noisy (bad) original recordings can lead to image distortion in the copies, especially in the special effect areas. This distortion, especially at the top edge of the picture, is due not to defects in the processor but to physical factors. Other recordings often bring improvements.

Instruction manual Color Audio/Video Processor VCR 4045

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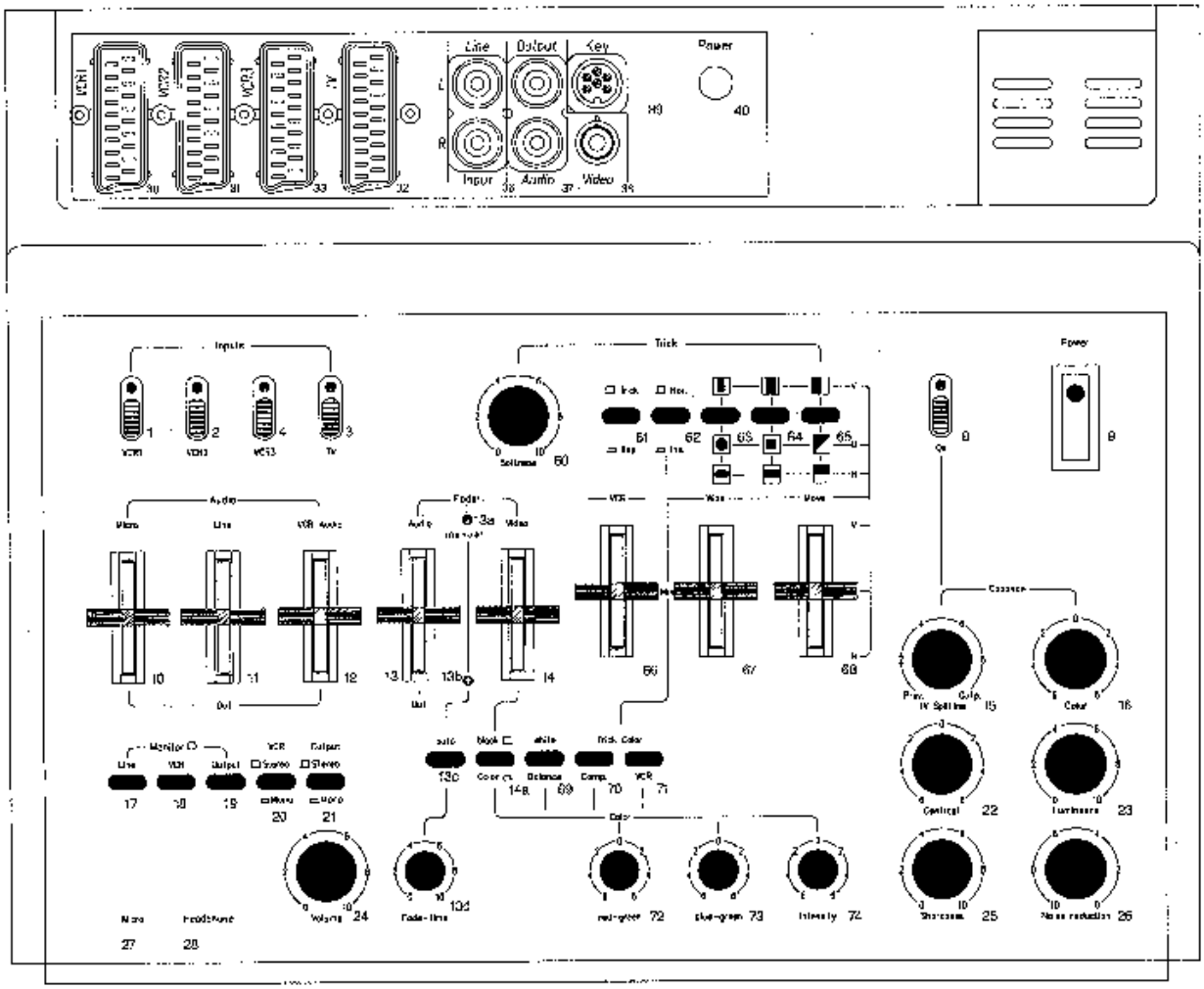
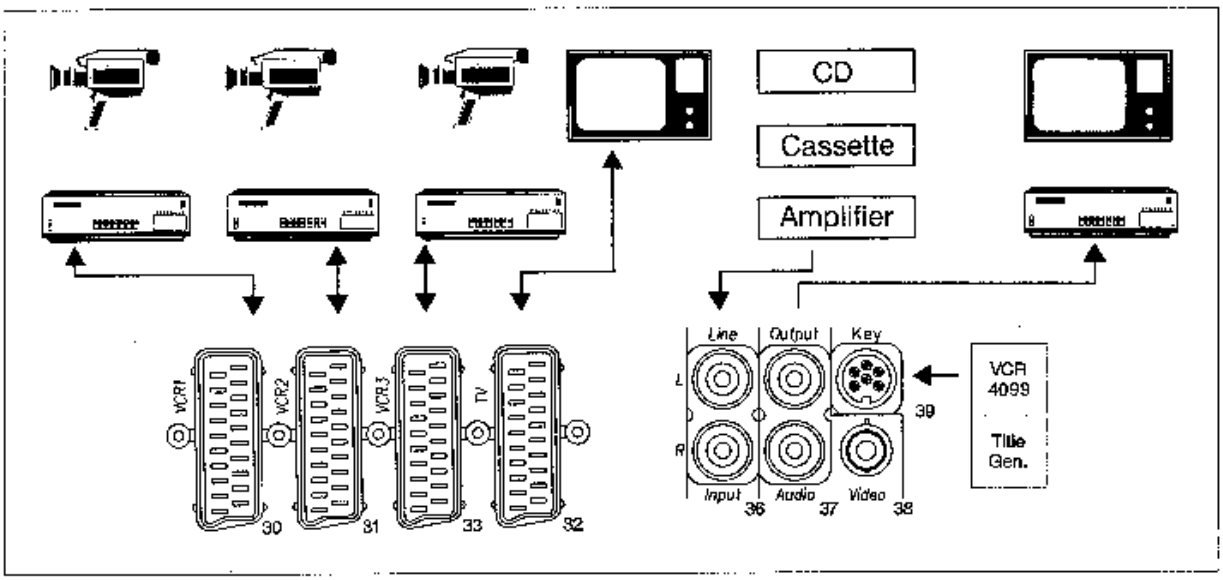

Line
Output
Key
Power
Input
Audio
Video
Trick
Audio
Fader
Cassette
Monitor
Color
Volume
Fade-time
Intensity
Shortcuts
Noise reduction

Fig. 1


CD
Cassette
Amplifier
VCR1
VCR2
VCR3
TV
Line
Output
Key
Input
Audio
Video
VCR
4099
Title
Gen.
30
31
33
32
36
37
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39

Fig. 2

Operation elements

Audio/Video processor functions

1	Input VCR 1	Input selection button for video recorder 1
2	Input VCR 2	Input selection button for video recorder 2
3	Input TV	Input selection button for television recordings
4	Input VCR 3	Input selection button for video recorder 3
8	Enhance On	Video enhancement On / Off
9	Power	Power supply switch
10	Audio Micro	Mixing control for insertion of microphone commentary
11	Line	Mixing control for insertion of high-level sound source (cassette recorder, CD-player)
12	VCR Audio	Mixing control for insertion of original sound
13	Fader Audio	Fade-in / fade-out control for total sound
13a	Manual	Manual fade control aktive indicator
13b	Auto	Indicator for switch fade-in and fade- out of picture and sound in active mode
13c	Auto	Switch for automatic joint fade-in and fade-out of picture and sound
13d	Fade-time	Adjustment control for fade-in and fade-out time
14	Video	Fade-in / fade-out control for picture
14a	Black/Colour	Fade out to black or colour
15	TV Splitline	Screen-split control to divide screen for picture pre-/post-processing
16	Color	Control for readjustment of color intensity
17	Monitor-Line	Selection button for headphone supervision of line input (external sound source)
18	VCR	Button to select headphone supervision of original sound
19	Output	Button for headphone supervision of mixed sound
20	VCR stereo/mono	Stereo/mono selection switch for original video sound
21	Output Stereo/Mono	Stereo/mono selection switch for audio outputs
22	Contrast	Control to set light/dark contrast
23	Luminance	Control to set luminance (brillance)
24	Volume	Volume control for headphones
25	Sharpness	Control to set edge sharpness
26	Noise Reduction	Control to set noise (snow) reduction

Special effect functions

60	Softness	Edge sharpness control for effect/wipe screens
61	Trick/Key	Select button for effect or title function
62	Nor./Inv.	Effect fade «normal« or «inverted«
63	(Circle)	Circle/oval
64	(Rectangle)	Rectangle
65	(Split picture)	Split picture vertically, diagonally, horizontally
66	VCR Mix	Fade-over control video/effect screen
67	Wipe	Wipe fade control video/effect screen
68	Move V M H	Effect fade alteration control vertical, central or horizontal orientation
69	White balance	White balance on/off
70	Trick Color Comp.	Button 61 on »Trick« : fade effect into complementary color area Button 61 on »Key«: fade title into complementary color area
71	Trick Color VCR	Button 61 on »Trick« : fade effect into video Button 61 on »Key«: fade title into video
72	Red-Green	Red-green color-in control
73	Blue-Green	Blue-green color-in control
74	Intensity	Color intensity control for effect and white balance

Connections

27	Micro	6,35 mm stereo plug socket for microphone
28	Headphones	6,35 mm stereo plug socket for headphones
30	VCR 1	Socket for video recorder 1 (camera, camcorder etc.)
31	VCR 2	Socket for video recorder 2 (see 30)
32	TV	Socket for television with AV input / output
33	VCR 3	Socket for video recorder 3 (see 30)
36	Line Input	Stereo input sockets for external sound source
37	Output Audio	Output sockets for stereo sound
38	Output	Output socket for video
39	Key	Connection for synchronizable title generator VCR 4099
40	Power	Mains connection lead

What is video-processing?

Not all video recordings are successful at the first attempt. Important and interesting recordings are sometimes too dark or too bright, flat or out of focus. The VCR 4045 enables you to make individual improvements while copying from camcorder to video recorder. Even «dramatic« effects such as fading in and out can be produced with ease.

Good sound is part and parcel of a good video film. The VCR 4045 has an outstanding mixing console with which you can mix, for example, the original sound with music from your stereo unit and a stereo microphone commentary with audio pre-checking, just as you wish.

Video-processing with the audio/video-processor VCR 4045 is very simple. Video films can be played back, rerecorded, edited, copied and given a new soundtrack. At the same time, the VCR 4045 is a switch console for video recorders and your television. You can record from one video recorder to another, while using the televison as a control monitor. Naturally, television programmes can also be recorded. You can also copy from one video recorder to several others simultaneously. The various applications can be selected using switches on the VCR 4045 without the necessity for changing the connection leads. All standard video systems which use PAL can be extended with the VCR 4045. It goes without saying that there is a stereo sound facility. The switching voltage required for playback on a television is provided automatically.

What is special effect mixing and white balance?

Films can be made more interesting if special effect functions are available. For example, scene changes become more interesting when colored screens - circular, rectangular or diagonal areas - gradually close in on or move out from the video recording. Soft and hard frames are also possible, as well as complete or partial colorings of the video pictures. The character of the recordings can be altered considerably and impressively. For example, pictures taken in the daytime can be made to appear like night.

Alternatively, incorrect colors due to incorrect exposure can be corrected using the built-in white balance function - pictures believed lost can still be saved.

CONNECTING

Audio/video Inputs/outputs

The video processor can only work properly if the connections have been made correctly.

The audio/video scart sockets (nos.30-33, see figure 1) in the connection panel are wired as inputs and outputs for transmission in either direction. Additional outputs are available with »Output« (37, 38).

In general, all four audio/video inputs and outputs can be used to connect video recorders, camcorders, etc. as required. A connected signal is carried to all outputs simultaneously. However, if a television is to be used as a control monitor, it is advisable to connect its socket 32, as this is where the screen-splitting function is effective. The picture can be split in variable ratios for comparison of the processed picture shown on the left-hand side with the unprocessed picture on the right-hand side.

The audio signals are directly connected by way of the AV scart sockets. For Output (37) they are connected by way of the cinch sockets (33). An additional sound source can be connected via the »Line« cinch inputs (socket 36).

Example:
Illustration 2 shows a typical system setup.

The Vivanco leads 9/10 can be used as connection leads if the video recorders are provided with the nowadays widespread AV scart sockets. For other leads see the back of the pack.

Title generator connection

A title generator, e.g. Vivanco VCR 4099 or a synchronizable key camera is connected to the socket »Key« 39.

Microphones and Headphones

If the integrated audio mixing console is to be used, then one or two microphones must be connected to the microphone socket (37) (stereo jack 6,35mm). These sockets are located on the left at the front of the audio/video processor.

If a mono microphone is connected, the microphone commentary is mixed into the left channel, unless you switch over to »Mono«, using button 21 for this purpose.

Mains connection

Mains connecting via the attached mains lead. Make sure that the alternating voltage range of 200 to 240 V is observed.

Checking the connections

1. Press mains switch 9 (green lamp lights up), see fig. 1, page ?
2. Switch off »Enhance On« function (switch 8). The lamp on switch 8 is then off.
3. Switch camcorder or video recorder with recorded cassette to play and press button 1,2,or 4, depending on whether this recorder is connected to VCR 1,2 or 3.
4. Switch the television to the AV input that is beeing used, check whether image and sound are beeing transmitted from the video recorder. If not, check the connections, and repeat the checking procedure from point 1.
5. Start recording in the AV function (see Operationg Instructions for the video recorder concerned) on the target video recorder that is loaded with a blank cassette.
6. Stop the master video recorder, rewind the tape and switch to playback. Now actuate the corresponding input selector switches 1,2,or 4, depending upon the slave video recorder that is connected to sockets 30,31 or 33.
7. Check the picture and sound of the copy. If there is no picture or sound check the lead connections, and restart from point 1. If there is a picture but no sound, slide the controls 12 »VCR Audio« and 13 »Fader Audio« to the back and, if required, press button 13c »auto«.

CONTROLS, BUTTONS AND DISPLAYS

Video switching console and distributor amplifier

The audio/video processor incorporates a video mixer and distributor-amplifier function. These are operated using buttons 1 to 4. The selected function is indicated by a lamp. The integrated distributor amplifier function supplies the selected signal to all outputs simultaneously.

Audio-mixer

For sound-mixing use the 4 pivot control 10 to 13. The seperate stereo/mono buttons 20 and 21 for video recorder input and output allow recording on a stereo video recorder with stereo sound after mixing original mono sound with stereo music, etc..

The audio pre-checking function of the audio mixer, activated using buttons 17 to 19 and the headphone volume control (24), allow you to supervise the sound mix.

Video-enhancement

By pressing the Enhance-On button (8) the video-enhancing function is switched on and the controls 14 to 16, as well as 22,23,25 and 26 are activated. If the funtion is selected the lamp next to button 8 lights up. Automatic fading in and out of picture and sound are possible using the indicators 13a and 13b, as wel as button 13c and control 13d.

Special effect mixing and fading-in of titles

To mix special effects and fade in titles use controls and buttons 60 to 74.

OPERATION

An editing plan is needed for the processing of every film. Advice on how to make an editing plan for video films is given in the section »Editing plan«. If you are already sufficiently familiar with the individual operating elements you can skip straight to the section »Editing plan« at the end of the operating instructions.

Switching
Selection of playback equipment

Up to four pieces of playback audio/video equipment can be connected to the VCR 4045 audio/video-processor. The unit which is to be used for playback is selected using button 1,2,3 or 4.

Video-Enhancing

For subsequent video-processing press the »Enhance«switch (8). The adjacent lamp lights up. In order of test the picture-enhancement functions the «Video-Fader« swivel control (14) should be moved into the top position. (Video).

Splitline

Using the »TV-Splitline« control (15) the screen of the connected television can be split into two sections. If the control is in the middle position, the processed picture appears in the left half of the screen and the unprocessed picture appaers in the right half. Using the control you can move the splitline in either direction to the far edge of the screen with the result that the unprocessed or processed picture can be displayed in full. The splitline function is only effective on TV output so that it can be used while copying.

Color saturation

Using the »Color« control (16) you can adjust the color intensity. If the control is in the middle position the color intensity corresponds approximately to that of the input signal. By turning it to the right picture becomes more colorful and by turning it to the left the color intensity can be reduced.

Contrast

Using the »Contrast« control (11) the contrast between very dark areas and very light areas can be intensified or reduced. With the control in the middle position the output signal corresponds approximately to the input signal.

Luminance, brilliance

Using the »Luminance« control (23) the overall brilliance of the picture can be altered. In the »O« position the brilliance of the output signal corresponds approximately to that of the input signal. If you want to increase the brilliance, turn the control to the right.

Sharpness, contours and »snow« (Noise reduction)

Using the «sharpness« control (25) and the «Noise Reduction« control (26) you can achieve an optimum between pictures with sharp contours and those with «snow« depending on the quality of the video film.

Special effects and titles
White balance

For color correction (white balance) release button 61, i.e. set to »Trick«. If the Whitebalance button (69) is then also pressed the controls 72 - 74 can be used for color cast correction. When the controls are in the zero position the mixed color is gray, i.e. the colors hardly change. The reddish coloring of, for example, a green cast film is corrected by turning the »Red-Green« control 72 to the left. Other corrections by coloring are also possible. In addition, the picture quality should be optimized by means of the contrast and color controls (16 and 22).

Special effect screens

For the selection and insertion of special effect screens proceed as follows:

1. Set button 61 to «Trick« (not pressed).
2. Press one of the shape select buttons 63 (circle/ oval), 64 (rectangle/frame) or 65 (horizontal, vertical or diagonal area) to select the screen.
3. In the »Nor.« (normal) position of button 62 the screen shapes surround the video picture. In the »Inv.« (inverse) position the shape areas appear in the video picture.
4. Press either button 70 »Trick Color Comp.« (Comp.=complement) or 71 »Trick color VCR«. In the first case, patterned areas of color appear which are produced from the selected shape in the color selected using controls 72 - 74 and the complementary color, e.g. a red circular disc on a green background. In the second case, if button 71 »Trick Color VCR« is selected, the video film being played appears together with the selected screen, e.g. the film in a circular cut -out. In both cases a video film must be played continuously, otherwise no picture will appear.
5. The special effects appear only if controls 66 »VCR Mix« and 67 »Wipe« are pivoted to the front. With the »VCR Mix« control the fixed screen gradually comes into or disappears from the picture, while control 67 »Wipe« allows the transparent or non-transparent screen to be altered in size from invisible to completely filling the picture, i.e. the screen acts gives the impression of a curtain in a theatre.
6. Using pivot control 68 »Move« the screen shapes can be altered continuously from horizontally (H) through middle (M) to vertically (V) oriented screens. Examples of possible screen shapes are illustrated next to buttons 63 - 65.
7. Using controls 72 - 74 a variety of color and color intensities for the color areas can be selected. However, when recording the color areas, lines can appear in the picture for physical reasons, i.e. due to the quality of the recorder/camcorder and the cassettes being used. As these effects are not caused by the processor they can be reduced by avoiding unsuitable colors. The suitable colors can be established by means of trial recordings.

Fading- in of titles

In order to fade in titles the following steps must be taken:

1. Press button 61 »Trick/Key«. Special effect screens and titles or white balance cannot take place at the same time.
2. By pressing button 70 »Trick Color Comp.« or 71 »Trick Color VCR« the title is faded either into the complementary color area or the film being played.
3. The color of the lettering is set using controls 72 - 74. The complementary color of the color area then results automatically, e.g. orange when blue is selected or yellow when blue-green is selected.
4. To mix or fade in, use pivot control 66 »VCR Mix«. The title is invisible when these are pushed right to the back.

Sound Mixing

The VCR 4045 incorporates a fully-equipped audio mixing console. You can, for example, mix the original sound of the video cassette with a microphone commentary and an additional piece of music via an appropriate input.

Stereo/mono switch-over

Using the »Stereo/Mono VCR« button (20) you can differentiate between stereo and mono recorders. If the source video recorder (camcorder) has only mono audio track, press the «VCR« button (20). The original mono sound is then distributed to both stereo channels and, if required, mixed with stereo music via the line input (36) and microphone commentary. If the source recorder is a stereo recorder, the »Stereo/Mono VCR« button (20) should be in the stereo position (button not pressed).

Using the »Stereo/Mono output« button (21) the unit can be switched over entirely to mono operation, if this button is pressed. This is particularly advisable if the target video recorder is a mono recorder.

Headphone monitor

If headphones are connected to the »Headphone« socket (28), the sound-mixing process can be supervised using these headphones. The »Volume« control (24) effects only the volume sound of the headphone. It does not effect the audio signal to be recorded for the video recorder. Control 24 should be in the zero position when no headphone is connected. Using the headphone monitor button (17 to 19) the incoming audio signal (»Line«-button 17), the incoming original sound from the video-film (»VCR«-button 18) or the mixed outgoing sound (»Output«-button 19) can be selected for the headphone monitor.

Microphone commentary

If a mono or stereo microphone is connected to the «Micro« socket (27) a microphone commentary can be added using the «Microphone« control (10). If only a mono microphone is connected the microphone commentary will almost certainly only be mixed into the left channel.

Mixing

By using the »Microphone« (10), »Line« (11) and »VCR Audio« (12) swivel controls the sound components microphone commentary, sound from the Line input (36) and the original sound from the video recorder/camcorder can be mixed together as required.

Using the »Audio-Fader« swivel control (13) the overall mixed sound can be faded in or out. When Fader 13 is in the maximum rear position the sound can be faded in or out together with the picture by pressing »Auto« button 13c. The speed of the fading process is set using control 13d (Fade-time). Lamps 13a and 13b indicate whether fading is possible, either by pivot control (»Manual« lamp 13a on) or by pressing a button (»Auto« lamp 13b on). Both at the same time is not possible.

Audio dubbing

Certain video recorders have a special audio dubbing function with which video and audio editing can be performed one after the other instead of parallel. The video track remains unchanged, while the sound track can be newly recorded, naturally with the assistance of the processor. However, since a special audio input (see the operating instructions for the given video recorder) is usually envisaged for dubbing on the video recorder, the processor must be additionally connected at this point. Such a connection is established by linking this videorecorder input with the »Audio« processor output (37). Sound mixing proceeds in the described manner.

The VCR Audio control (12) is used to mix the original sound supplied by a video recorder in audiodub mode.

Audio fader and video fader editing

Using the »Audio-Fader« and »Video-Fader« swivel controls (13 and 14) the picture and sound can be faded in softly at the beginning of a scene and faded out softly at the end, i.e. by moving the audio-fader(13) from the font to the back the volume increases from inaudible to maximum, and by moving the video-fader(14) from the front to the back the picture is faded in from dark to light. The video-fader is active only when the »Enhance-On« function (button) is switched on. In addition to the separate fading in and fading out of the picture using »Fader« 14 the picture can also be faded in or out »automatically« together with the sound by means of »Auto« button 13c and control 13d. Further details are given in the chapter »Mixing«.

The sequential attachment of the individual scenes to make a complete video film is done either by manually controlling the video recorder (camcorder) being used using its own operating controls or with an editing controller, e.g. Vivanco VCR 5055, which controls the recorders.

In order to ensure clean editing the following operating sequence must be observed for all dubbing and editing operations:

A. When recording, first start the source recorder - then the one which is to record.

B. When ending a scene, first stop the target recorder - then the source recorder. This is normally done by using the pause button. You should take into consideration that most video recorder switch off the pause function (still picture) after a certain time (e.g. approx.5 minutes) has elapsed. If the recording is then simply restarted, this usually results in an unclean edit, i.e. the pictures are distorted. In this case proceed as follows:
   - Wind the tape in the source recorder to just before the beginning of the new scene and then stop.
   - Reset the input of the VCR 4045, e.g. from VCR 1 to VCR 2.
   - Wind the tape in the target recorder back a little. Play to end of the last scene and press the pause button just before the end of the scene.
   - Press »record« on the target recorder without releasing the pause button.
   - Reset the input of the VCR 4045 again, from VCR 2 to VCR 1.
   - Press »play« on the source recorder and release the pause button on the target recorder at the beginning of the scene.

The above procedure works only if the target recorder is equipped with an assemble-edit function. Using the fader controls 13 and 14 you can fade out before they have been stopped. Of course, the audio and video faders can also be operated independently of one another. Hard cuts can be made by setting the audio and video controls as far back as they will go.

EDITING PLAN

If you want to enhance a video film it is advisable to device a concept (editing plan). This plans the necessary settings scene for scene after they have been determined previously without copying. For each scene a form should be filled in (see reverse of instructions) to ensure that the correct settings can be found quickly when it comes to make the final copy. Figure 3 shows an example of a completed scene form.

Scene number, tape counts from the video recorder at the beginning and end of scene a description of the scene, microphone commentary and the various switch and control positions for this scene must be registered.

A »professional« editing procedure should resemble the following:

1. After »checking the connections« (cf.) all the controls are set to »O«. The tape counter of the source recorder is set to »O«. After this, the counter of the source recorder must not be reset to »O« for the duration of editing.
2. Locate the first scene using the tape controls of the source recorder. Make a note of the tape count at the beginning of the scene, the scene number and the scene description.
3. Locate the end of the scene, using the »Search« switch if available and make a note of the tape count.
4. Wind tape back to the beginning of the scene.
5. Play back the scene, at the same time trying out the correct control settings. It may be necessary to repeat this procedure several times until all the settings are as required.
6. Once you have established the best settings enter them on your form.
7. Repeat point 2 to 6 for the next scenes.
8. Once you have set all the scenes and filled in the appropriate forms decide on the scene sequence and note it on the form.
9. If all the scenes, settings and the sequences have been decided upon you can start copying. To do this, observe the following procedure:
   - Insert a blank cassette in the target recorder and let it run forwards a little.
   - Wind the source recorder to just before the beginning of the first scene and press the pause button.
   - Set the scene settings on the VCR 4045.
   - First start the source recorder and then the target recorder. Use the fader if required
   - If required, mix in the commentary during copying
   - If required, use the fader just before the end of scene
   - First stop the target recorder and then the source recorder
   - Repeat the procedure for the following scene

Please read the section »Audio-fader and Video-fader editing« carefully, especially if you have no clean edits, see page 18.

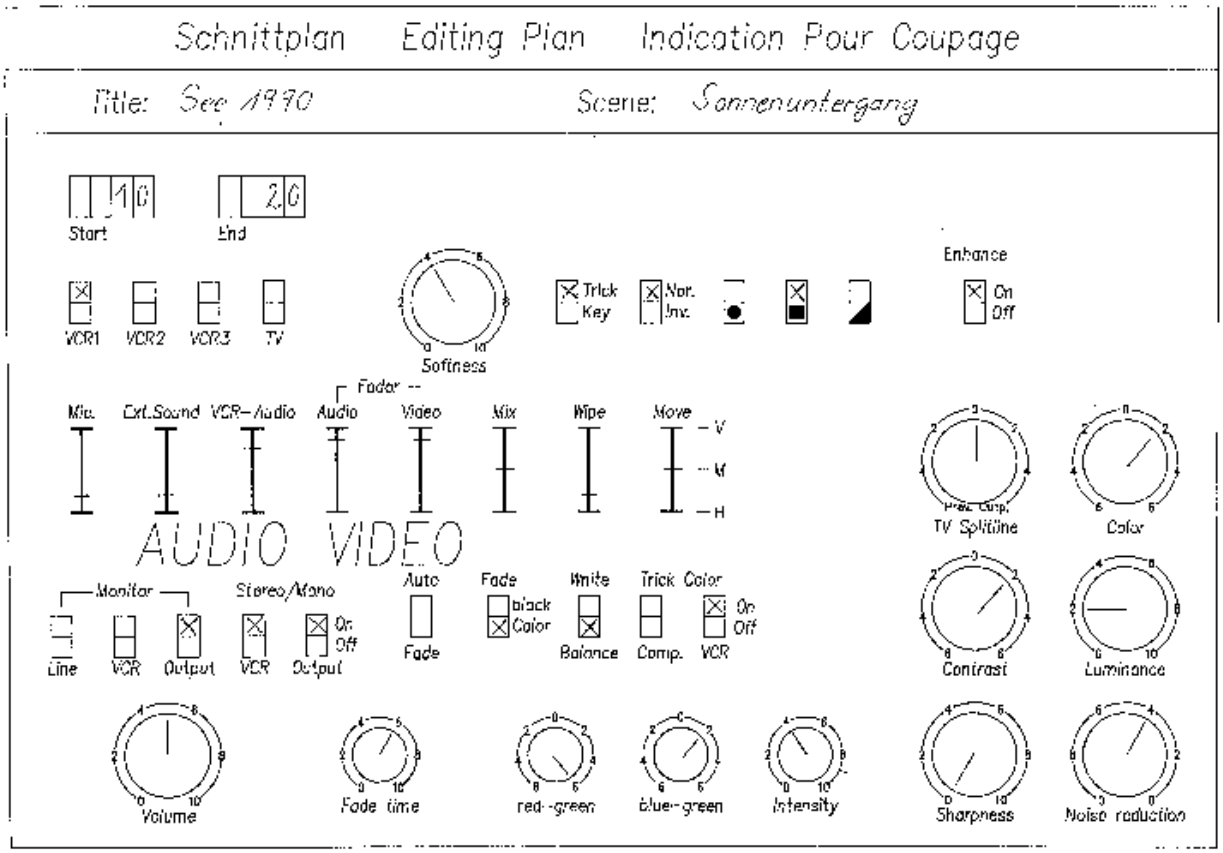


Fig. 3

Which is the correct lead?

	VCR, TV, Camcorder				
VCR 4045	AV-SCART	RCA	BNC/RCA	AV-DIN	Movie
	Vivanco type				
AV-SCART	9/10 (9/17)	9/16	9/16 + 9/04	9/02 + 9/27	9/29
BNC/RCA	9/16 + 9/04	9/14 + 9/04	9/19 + 9/03	9/13 + 9/04	---

	Audio (stereo unit, CD Player, tape recorder, cassette recorder, microphone, headphones ...)				
	5-pin DIN	RCA	3,5 mm - jack - 6,35 mm		5-pin
	Vivanco type				
Line	1/06	3/01	5/09	2/11 + 3/01	----
Mic	----	----	2/06	standard	----
Headphones	----	----	2/06	standard	2/02

Fig. 4

WHAT HAPPENS IF .....

... the connected equipment does not have any AV scart sockets?
Use an adapter or adapter lead, see figure 4.

... the television has only one aerial input?
Buy a modulator which converts the VCR 4045 output signal into an aerial signal

... more than one copy is to be made simultaneously?
All the input sockets are also wired as output sockets, so you can connect more video recorders (maximum 4).

... Output is to be used as output?
No problem - the three sockets can also be used as AV output.

... equipment with DIN AV sockets are to be connected?
Use VIVANCO lead and adapter (9/02 + 9/27)

... a microphone is to be connected?
Use any microphone, stereo or mono, with impedance lower than 2,2 kOhm and with a 6,35 mm plug, e.g. VIVANCO EM 70. Use an adapter if the microphone plug does not fit.

... a video recorder does not record?
The appropriate recording switch on the video recorder must be switched on (e.g. »Camera/Video«,AV1 etc.)

... there is no picture and sound coming from the television?
Switch the television to the AV channel and, if necessary, see section »Checking the connections«.
Press the main power switch on the VCR 4045, even if you only want to play film from video recorder to the television. Select the correct input switch VCR1, VCR2 or VCR 3.

... there is no sound output or no sound being copied?
Move the VCR audio and audio fader pivot controls to the back or press »Auto«.

... a record player is to be connected?
Connection is possible only with a pre-amplifier, such as a stereo unit, mixing console, etc.

... there is nothing to be seen?
Once again, follow the instructions in »Connections«. If phono, BNC connections are being used, make sure the input and output are the right way round. Input should be connected to Output and Output to Input. If necessary, change the plugs on TV or video recorder.

... there are picture and/or sound faults during or after re-recording?
Adjust all controls to 0-position or to smaller values. Sometimes less proves to be more because video recorders are fitted with automatic level controls which clearly change the desired result.

TECHNICAL DATA

Contrast regulation + 7 dB, - 3 dB
Color control + 4 dB, - 6 dB

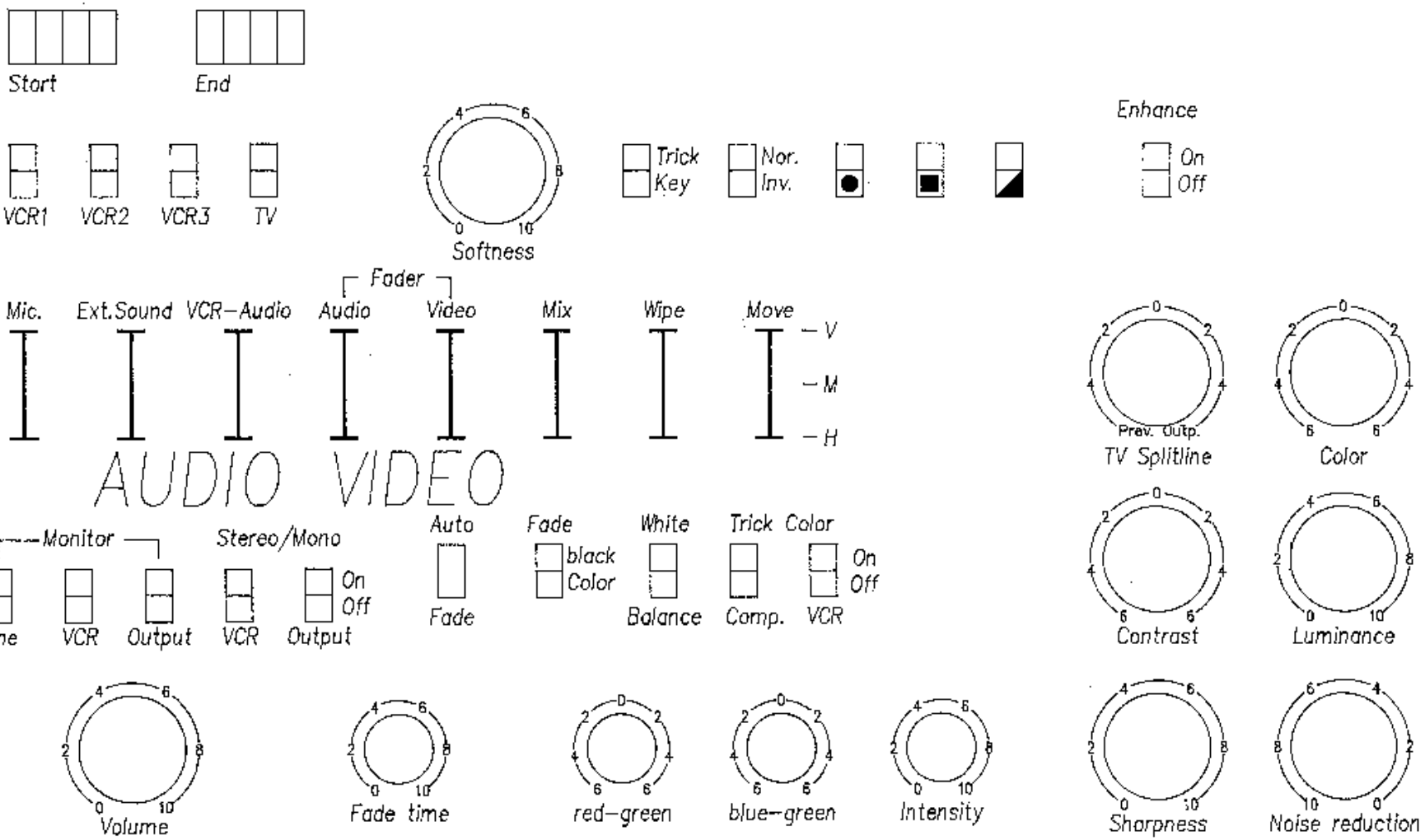
Contour sharpness control; Luminance control; Noise reduction; Seperate video and audio fade in/out; Autofader; Fade-out to black or colour; Variable special effects; Character generator (VCR 4099) connection;
Splitline for before-and-after control.
3-channel stereo mixing console with audio pre-check.

Inputs: Audio/Vidio 4 * Scart
Audio: 1 V / 20 k Ω
Video: 1 Vpp / 75 Ω
Audio Line in: RCA, 1 V / 20 k Ω
Microphone: 6,3 mm plug, stereo: 1 mV / 2,2 k Ω

Outputs: Audio/Video: 4 * Scart, 1 * RCA/BNC
Audio: ≈0 Ω
Video: 1 V pp / 75 Ω
Headphones: 6,3 mm plug, stereo: 300 mV / 32 Ω

Key/title generator connection: 6-pol.-DIN socket
Pin 1: Fringe, Pin 2: Video, Pin 3: Ground.Pin 4: H-synchr.,
Pin 5: V-synchr., Pin 6: Black Burst

Power supply: 200...240 V/ 50 Hz, built-in
Video bandwidth: 5 Mhz, TV-standard: PAL, 625 combined video
Line definition: > 400 lines
Audio bandwidth: 30 Hz...25 kHz
Dimensions: approx. 63 x 360 x 290 mm (height x width x depth)
Weight: approx. 2,6 kg
EDV-No. 1745

Schnittplan Editing Plan Indication Pour Coupage

Title: Scene: